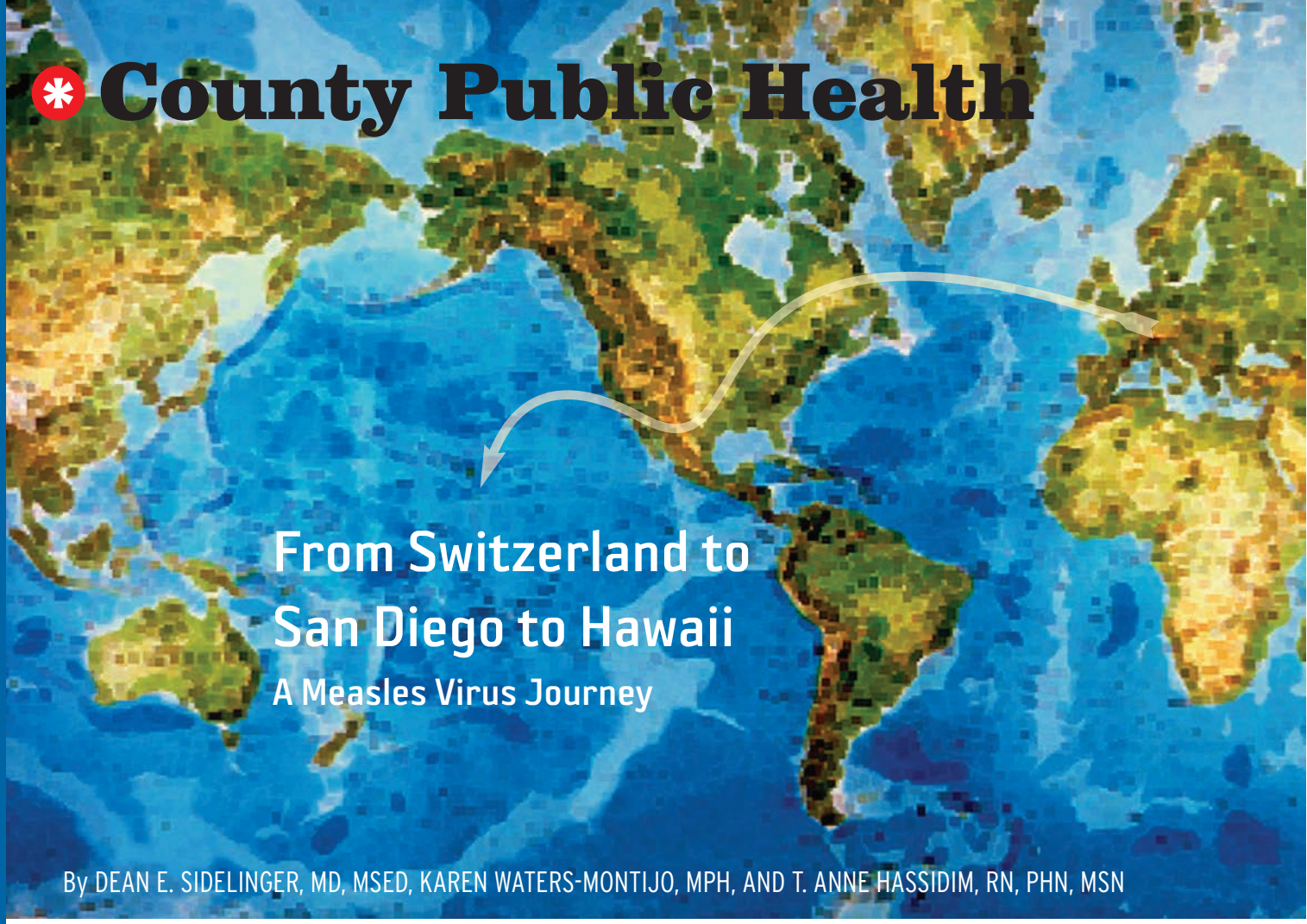

From Switzerland to San Diego to Hawaii

A Measles Virus Journey

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In February 2008, the County of San Diego Immunization Branch investigated a measles outbreak that infected twelve children. None of the children infected with measles had been vaccinated — three because they were less than a year old and nine because their parents had chosen not to vaccinate their children against measles. The cases in this outbreak were just a fraction of the 103 cases of measles reported in the United States in the first five months of 2008.

In the San Diego outbreak, a seven-year-old boy who had not been immunized against measles traveled to Switzerland with his family. Switzerland is in the midst of a nationwide measles epidemic, with more than 2,000 cases since November 2006, due in part to immunization coverage dropping below 90 percent. The child was infected with measles, becoming symptomatic after his return to the United States. Before he was diagnosed, the measles spread to his two siblings and five fellow students at his school. Four additional children, three under the age of one and thus ineligible to receive routine MMR vaccination, were infected when the parents of the index case sought care at his pediatrician's office.

COUNTY RESPONSE

To contain the outbreak, the County of San Diego Public Health Services, with the Immunization Branch taking the lead, investigated all suspected cases, coordinated with medical providers, and provided education and updates to the San Diego community. There were 682 children and adults with known exposures who were followed up as part of the outbreak response:

- Sixty percent had evidence of full immunity
- Twenty-six percent had received a single dose of measles vaccine
- Nine percent were under one year old (not eligible for vaccination), and
- Five percent had parent-signed personal belief exemptions (PBEs).

At the height of the outbreak, 71 people were placed on voluntary quarantine. Exposures to measles occurred at the index case's school, a preschool, a child-care facility, a swim school, and a physician's office. Additional potential exposures occurred in grocery stores, restaurants, after-school activities, and a circus performance. One child traveled to Hawaii while infectious, potentially exposing travelers at the airport and on the flight. None of these public exposures resulted in any susceptible person contracting measles. During the response to the outbreak, 16 individuals received post-exposure prophylaxis with IgG and 16 received post-exposure MMR vaccination.

PRACTICAL TIPS

The outbreak highlighted the need for increased focus on infection control policies in outpatient physicians' offices, urgent care centers, and emergency departments. In response to the outbreak, the Immu-

nization Branch staff has compiled practical tips for disease containment. The recommended measures are as follows:

Infection Control Measures

- Triage should be instituted at the time of the office visit.
- If patient has a febrile rash illness and history of travel in the prior three weeks, measles should be suspected.
- If measles is suspected, the following measures should be implemented :
  - Use a separate entrance, mask the patient (or use other practical means of source control), and immediately place the patient in the exam room (use a negative pressure room if available).
  - Schedule visit for end of day and just use one room.
  - Do not have the patient circulate to other stations in the office.
  - Close the door of exam room and limit access.
  - Keep the room closed off for at least two hours after the visit is completed.
- Have face masks available in waiting rooms with recommendations for their use.
- Have separate well and sick waiting rooms with their own entrances and check-in areas (if feasible).
- Post a sign outside the office: "If you or your child has a rash or skin condition that you think might be contagious, please stay outside and have someone notify the receptionist."

Contact Investigation

- Note time of visit so records can be examined for other individuals potentially exposed in common spaces, if needed.

Medical History

- Consider vaccine-preventable diseases as a diagnosis when it is known that the patient has traveled; check the patient's immunization record in the medical record or immunization registry (see sidebar).

Reporting

- Notify the Public Health Department of the suspect case as soon as possible. Do not wait for testing results [(619) 515-6620 in San Diego or online Morbidity Reporting Form at www.dhs.ca.gov/forms/pdf/pm110-8-07.pdf].

Medical Work-up

- Do not send the patient to a lab facility for serology. Draw blood for testing and complete form for appropriate tests (call the local Public Health Laboratory with questions about what tests to order).
- For suspected measles, order measles (rubeola) IgM and IgG tests and immunize patient if vaccination status is not current at the time of visit.
- To minimize delays in determining a diagnosis, submit blood or a split of blood to the local public health lab [(619) 692-8500 in San Diego] so it can be expedited to the state lab, if needed.

Patient Advice

- Instruct families to protect themselves and community members by maintaining home isolation until the diagnosis is determined. Ascertain the vaccine status of other household members as well as visitors or care givers coming to the home.
- Advise parent/patient that a report will be made to the health department and to expect a follow-up phone call. [In San Diego, Urgent Communicable Disease Reporting contact info is (619) 515-6620 weekdays and (858) 565-5255 after hours.]

Workforce Safety

- As part of the hiring practice for office/clinical staff, check immunization status or provide vaccines for measles, mumps, rubella, hepatitis B, varicella , Tdap, and annual influenza vaccine. Refer to the Immunization Action Coalition (IAC) website (www.immunize.org/catg.d/p2017.pdf) for current Healthcare Personnel Vaccination Recommendations.

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LESSONS LEARNED

- The cooperation of the medical community was key in maintaining high immunization coverage rates and in identifying persons at risk during the measles outbreak.
- Clear pathways for obtaining, collecting, and sending laboratory specimens to appropriate testing locations were essential for prompt diagnosis. Pathways should be identified and communicated quickly to contain the outbreak.
- Use of the San Diego Immunization Registry helped to quickly determine immune status of persons exposed.

For additional information, please contact the San Diego Immunization Branch at (619) 692-8661.

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QUESTION: Which patients need a second dose of MMR?

ANSWER: If your response is "I don't know" or "Sounds like a lot of work to find out!" consider the services of the San Diego Regional Immunization Registry (SDIR). By having patients' immunization records in SDIR, a physician can find out who is missing a vaccine dose in less time than it takes to order lunch. The SDIR is a Web-based system that can help keep track of patients' immunizations as well as track vaccine inventory. The registry can be used to forecast needed immunizations regardless of the age of the patient or the number of doses given. Medical providers receive personal attention from SDIR staff to help clinic staff incorporate this Web-based tool into the practice. For more information, call the SDIR Manager at (619) 692-8403.